

REMARKS

Before entry of this Response, claims 1-33 were pending in the application. Claims 4, 5, 16, 19, 20, 23-25 and 33 have been withdrawn from consideration as directed to non-elected species. Claim 6 has been allowed. After entry of this Response, claims 1-3, 6-15, 17, 18, 21, 22 and 26-32 remain pending under examination. The number of total claims has not been increased, and the number of independent claims has not been increased beyond the number for which payment previously had been made. However, because claims 1 and 26 are believed allowable for reasons explained below and also generic to claims 4, 5, 16, 19, 20, 23-25 and 33, Applicant requests that claims 4, 5, 16, 19, 20, 23-25 and 33 be allowed upon allowance of claim 1 or claim 26.

Claims 1-3, 7-15, 17, 18, 21, 22 and 26-32 were rejected under 35 USC § 112, first paragraph, as set forth in paragraph 2 of the Office Action. Applicant respectfully traverses this rejection for the reasons that follow.

Applicant has amended claims 1 and 26 to delete the "relative degree of" language, which was meant only to emphasize that the degree of the random surface roughness related to the desired flow rate of fluid through the restrictor. In accordance with 37 C.F.R. § 1.116(b)(1), it is respectfully requested that the amendment be admitted as being necessary to place the case into condition for allowance and responding to a requirement of form expressly stated on page 2 of the Final Office Action.

As originally filed, claim 1 stated that the opposing surfaces have a relative degree of surface roughness and opposed surface area defined as a function of a

desired flow rate of fluid through the restrictor. Moreover, page 11, line 14 through page 12, line 13 of Applicant's specification states (emphasis added):

Referring particularly to Figs. 3A and 3B, it can be seen that at least one of the disks 66a or 66b, includes a generally "rough" surface such that when the opposing surfaces 62 and 64 are placed against each other, the restrictive fluid flow field 84 is defined between the surfaces. In the illustrated embodiment, **each of the disks includes a roughened surface**, as particularly seen in Fig. 3B. In this manner, there exists void spaces or valleys 72 and protrusions 70 **that define a completely random restrictive flow field 84**. It should be appreciated that the degree of surface roughness between the opposing surfaces 62, 64, is grossly exaggerated in the figures for purposes of illustration only. It may very well be that, for many embodiments, the surface roughness is not discernible by the unaided eye.

By carefully controlling the degree of surface roughness of the opposed surfaces 62, 64, the rate of fluid flow between the matrix of valleys 72 and protrusions 70 along the field 84 may be controlled, and a relatively precise metering mechanism is defined. For a specific fluid pressure, a desired fluid flow rate can be achieved by carefully defining the particular parameters of surface roughness of each of the surfaces 62, 64, the surface area of contact between the surfaces 62, 64, and the pressure applied to the surfaces 62, 64. Taking these factors into consideration, **the restriction devices 66a and 66b may be designed for a particular flow rate** based on prediction algorithms. Alternatively, the dimensions and surface roughness of the devices 66a, 66b, may be empirically determined through routine experimentation.

As explained expressly in the above passages of Applicant's specification, the roughened surface on each of the disks defines a random restrictive flow field, and a relatively precise metering mechanism can be defined by controlling the degree of surface roughness of the opposed surfaces, which in turn controls the rate of fluid flow between the matrix of valleys and protrusions along the random flow field. Accordingly, the relation between the degree of random surface roughness and the rate of fluid flow

between the matrix of valleys and protrusions along the random flow field is expressly described in Applicant's specification in a manner so as to reasonably convey same to one of ordinary skill in the art.

Applicant therefore respectfully submits that claims 1-3, 7-15, 17, 18, 21, 22 and 26-32, as presented herein, are patentable under 35 USC § 112, first paragraph.

Applicant respectfully requests reconsideration and reexamination of claims 1-3, 6-15, 17, 18, 21, 22 and 26-32, as presented herein, and submits that these claims are in condition for allowance and should be passed to issue.

If any fee or extension of time is required to obtain entry of this Amendment, the undersigned hereby petitions the Commissioner to grant any necessary time extension and authorizes charging Deposit Account No. 04-1403 for any such fee not submitted herewith.

Respectfully submitted,

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